REMARKS

Claims 1-19 are pending with entry of this Response.

Applicant acknowledges the indicated allowability of claims 3-9, 11-17 and 19.

Claims 1-2, 10 and 18 stand rejected.

Rejection under 35 U.S.C. § 103(a)

At paragraph 2, spanning pages 2-6 of the Office Action, the Examiner improperly rejects claims 1-2, 10 and 18 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,144,711 to Raleigh ("Raleigh") in view of Japanese Patent Publication No. 06-347529 to Motoyasu ("Motoyasu"). Applicant respectfully disagrees with the Examiner's rejections and asserts the following remarks in response:

In order for the Examiner to establish a *prima facie* case for obviousness, three (3) criteria must be met. First, there must be some suggestion or motivation, either in the cited prior art references or in the knowledge generally available to those of ordinary skill in the art, to modify the primary reference as the Examiner proposes. Second, there must be a reasonable expectation of success in connection with the Examiner's proposed combination of the references. Third, the prior art references must disclose or suggest all of the claimed elements. *See* MPEP § 2143. The Examiner has failed to establish a *prima facie* case for obviousness because the Examiner failed to satisfy his burden of showing that the prior art discloses or suggests all of the claimed elements of claims 1-2, 10 and 18 and, as such, failed to satisfy his burden of showing that there is a suggestion

or motivation to one of ordinary skill in the art to modify the primary reference as the Examiner proposes.

First, the Examiner wrongly bases his rejection under 35 U.S.C. § 103(a) on Raleigh as the primary reference. Independent claim 1 recites, *inter alia,* "resolving the covariance matrix with a fictitious antenna array manifold." Independent claims 2, 10 and 18 each recite a similar element. Contrary to the assertions of the Examiner, Raleigh fails to disclose, teach or suggest resolving the covariance matrix with a fictitious antenna array manifold. Rather, Raleigh teaches away from such an element by estimating transmitted interference as a function of transmitter spatial weight (TSW) vectors and modifying the TSW vectors by the matrix $R_I^{-1/2}(n)$. The matrix $R_I^{-1/2}(n)$ corresponds to a spatial channel of an actual antenna array. *See* Col. 20, line 61 – Col. 21, line 25. The corresponding interference covariance matrix may then be determined by averaging the matrix over frequency or a substantially orthogonalizing procedure (SOP) bin. *See* Col. 21, ll. 33-63. This, however, is not a disclosure of resolving a covariance matrix with a fictitious antenna array manifold. For example, to obtain a delay estimate without knowledge of an antenna array or an explicit knowledge of the antenna gains, claim 1 recites that a fictitious array manifold is used, i.e., A'_f. With reference to paragraph [0040] of Applicant's specification, a fictitious array may be given by the aggregate of all vectors, $a = \begin{bmatrix} a_1 \\ a_2 \end{bmatrix}$ where a_1 and a_2 range over the set of complex numbers. Thus, the claimed process may estimate the delay without knowledge of the actual array manifold **A** by using instead the fictitious manifold A'_f, so that A'_f replaces A in the space-time

manifold $K = \mathbf{A} \otimes G$. This then becomes the aggregate of vectors, $K = \begin{bmatrix} a_1 g(\tau) \\ a_2 g(\tau) \end{bmatrix}$, as a_1 and a_2 cover the space of complex numbers and τ covers the expected range of multi-path delays. *See* paragraph [0041]. In contrast, Raleigh, requires knowledge of the actual array manifold in the calculations of its covariance matrices and weighting vectors. Thus, Raleigh fails to teach, disclose or suggest resolving the covariance matrix with a fictitious antenna array manifold and expressly teaches away from such a process. Withdrawal of the rejection under 35 U.S.C. § 103(a) for at least this reason is respectfully requested.

Motoyasu, however, fails to supplement the deficiencies of Raleigh as it relates to the emphasized patentable elements of claims 1-2, 10 and 18 above. For example, Motoyasu does not disclose "resolving the covariance matrix with a fictitious antenna array manifold". Rather, Motoyasu receives signals by an array antenna, converts the received data into real and imaginary parts and determines a covariance matrix from the corresponding data. Motoyasu calculates a noise space vector EN to determine a characteristic value of a covariance matrix. *See* paragraphs [0037]-[0040]. An equivalent wait vector W is calculated from the covariance matrix and may be characterized by assuming an arrival bearing. *See* paragraphs [0041]-[0048] Based upon plural arrival bearings, an estimation of interference may be determined. *See* paragraph [0068]. Motoyasu, however, is silent with regard to resolving the covariance matrix with a fictitious antenna array manifold as discussed above. Thus Motoyasu merely determines a corresponding arrival bearings for the actual array, and fails to disclose

resolving the covariance matrix with a fictitious antenna array manifold as required in the claims.

Thus, the Examiner has not met his burden under 35 U.S.C. § 103(a). Reconsideration and withdrawal of the rejection of independent claims 1-2, 10 and 18 are hereby respectfully solicited.

Conclusion

Applicant believes that the present application is in condition for allowance and, as such, it is earnestly requested that claims 1-19 be allowed to issue in a U.S. Patent.

If the Examiner believes that an in-person or telephonic interview with the Applicant's representatives will expedite the prosecution of the subject patent application, the Examiner is invited to contact the undersigned agents of record.

While an extension of time is not deemed necessary, the Office is requested and hereby authorized to charge the appropriate extension-of-time fees against **Deposit Account No. 04-1679** to Duane Morris LLP.

Respectfully Submitted,

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